

important aspect of the object referenced by that representation - first, rather than last as in conventional naming schemes that place pathnames before the names of the files or other resources. By placing the simple name first, the important part of object identifiers or object names are aligned first, for example in a list of object representations, rather
5 than last. This avoids misalignment of simple names of objects in such lists and lets the user quickly see the part of an object identifier that is important to the user - the simple name - first in the list, which is then followed up by the home of the object.

Other embodiments of the invention include a computer system, such as a server computer system, workstation, data storage system, network device, or other type of
10 computer system or device configured to process all of the method operations disclosed herein as embodiments of the invention. Embodiments of the invention are applicable to any computerized device that uses a graphical user interface to represent resources. In such embodiments, the computer system includes an interface, a memory system, a processor and an interconnection mechanism connecting the interface, the processor and
15 the memory system. The memory system can be volatile (e.g., RAM) or non-volatile (e.g., disk) storage or a combination thereof. In such embodiments, the memory system is encoded with a resource management application that when performed on the processor, produces a resource management process that representing resource(s) in a computing system environment by causing the computer system, under control of the
20 resource management process, to perform all of the method embodiments, steps and operations explained herein as embodiment of the invention.

Other arrangements of embodiments of the invention that are disclosed herein include software programs to perform the method embodiment steps and operations summarized above and disclosed in detail below. More particularly, a computer program
25 product is disclosed which has a computer-readable medium including computer program logic encoded thereon to provide a technique for representing resource(s) in a computing system environment as explained herein. The computer program logic, when executed on at least one processor with a computing system, causes the processor to perform the processing operations (e.g., the methods, steps and/or operations) indicated herein as
30 embodiments of the invention. Such arrangements of the invention are typically provided

as software, code and/or other data arranged or encoded on a computer readable medium such as an optical medium (e.g., CD-ROM), floppy or hard disk or other a medium such as firmware or microcode in one or more ROM or RAM or PROM chips or as an Application Specific Integrated Circuit (ASIC). The software or firmware or other such configurations can be installed onto a computer system to cause the computer system to perform the techniques explained herein as embodiments of the invention.

It is to be understood that the system of the invention can be embodied strictly as a software program, as software and hardware, or as hardware alone. Example embodiments of the invention may be implemented within the EMC Control Center (ECC) software application that provides management of resources within a storage area network environment. ECC is manufactured by EMC Corporation of Hopkinton, Massachusetts, USA.

Also, it is to be understood that other types of devices, such as data storage systems, can operate according to, and can be configured with embodiments of the invention. That is, it is not required that the techniques explained herein operate within a computer system such as a network management station. Instead, in such other embodiments, a data storage system such as one of the Symmetrix line of data systems produced by EMC Corporation can contain operational software code, logic and/or circuitry to carry out the processing of embodiments of the invention as explained herein. In such embodiments, the data access request in an open systems format may be directly received by the data storage system from a device such as a computer system coupled to the data storage system. The data storage system can thus operate a cache manager as explained herein and can maintain the history and partition caches locally, within a memory system (e.g., a cache memory system) within the data storage system. The data storage system can also store the data (e.g., in non-open systems format) locally with storage devices such as disk drives that are also contained within and that operate in the data storage system.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of preferred embodiments of the invention, as illustrated in the accompanying drawings in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, with emphasis instead being placed upon illustrating the embodiments, principles and concepts of the invention.

Figure 1 illustrates an example storage area network and computing system environment including a management station computer system configured to operate according to embodiments of the invention.

Figure 2 illustrates an architecture of the management station computer system from Figure 1 including an example of a graphical user interface configured according to embodiments of the invention.

Figure 3 shows an example of a graphical user interface configured according to embodiments of the invention.

Figure 4 is a flow chart of processing steps that show the general operation of a resource management process providing a graphical user interface configured according to embodiments of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Embodiments of the present invention relate to mechanisms and techniques that provide a unique resource representation scheme that can be employed, for example, within a software application or operating system that provides a graphical user interface to provide representations of objects that represent resources. Preferred embodiments of the invention are implemented within a resource management software program (i.e., application and/or process) that performs on a computer system such as a network attached workstation that is configured as a management or control station for remote management, configuration and control of resources within a computing system and network environment such as a storage area network. Resources that can be represented by embodiments of the resource management program of this invention can include, for example, network devices, computer systems (e.g., hosts, servers and client computer